

New England University Transportation Center



NE University Transportation Center
77 Massachusetts Avenue, E40-279
Cambridge, MA 02139
Phone: 617-253-0753
Fax: 617-258-7570
web.mit.edu/utc

Principal Investigator: Frederick P Salvucci
Title: Senior Lecturer
University: MIT
Email: salvucci@mit.edu
Phone: 617-253-5378

Co-Principal Investigator: John P Attanucci
Title: Research Associate
University: MIT
Email: jattan@mit.edu
Phone: 617-253-7022

Final Report

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MIT Employee Commuter Behavior Trial

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MIT Employee Commuter Behavior Trial

The objectives of the project included the following:

- To evaluate the potential impact (in terms of commuter mode shifts) from the introduction of disruptive technologies at the Massachusetts Institute of Technology in Cambridge, MA, including new transit benefits for auto commuters, real-time, location aware mobile phone applications and a new web-based reward incentive program;
- To determine improved employer transportation benefit program design; and
- To influence future Federal and state funding eligibility priorities with respect to transit commuting incentives and real-time ridesharing and transit user information.

This project report only partially addresses these objectives, due to the fact that events beyond the control of the researchers have delayed key elements necessary for the successful implementation of the full commuter behavior trial. Significant directly-related and supportive research has progressed so that when the key factors causing delay are resolved, it will be feasible to implement most, if not all, of the initial research design at MIT during the coming year.

The primary institutional factors key to the research that were delayed but are currently about to be resolved are the following:

1. A key element in the trial was to be the distribution of the "Mobility Pass" to the entire MIT workforce, and the monitoring of transit use by the full sample through access to MBTA Charlie card usage data with an appropriate internal information and marketing campaign. While significant progress has been made on the pilot program (see the summary of the results below), key elements related to the financial crisis adversely affecting MBTA have caused substantial delay. The elements of progress include:
 - a. Successful negotiation of a Memorandum of Agreement between MBTA and MIT to expand the pilot to full scale was finally completed in the late Fall, 2012, following this project's completion.
 - b. The inability of MBTA to separately monitor usage of Charlie Chips in the MIT Mobility Pass, due to staff shortages, has been resolved through separately funded, full-time MIT research associate "embedded" within MBTA to provide the technical staff capacity to produce the necessary data. The new researcher recently commenced his involvement in April 2013.
2. Ongoing institutional difficulty within MBTA related to the severe underfunding of MBTA operations finally appears to be approaching resolution. Both branches of the Massachusetts Legislature have approved significant new funding for operations, and a conference committee chosen to resolve differences. We are cautiously optimistic that the long-lasting operating funding crisis is about to be resolved with new funding in place by July 2013.
3. An analysis and report on the Mobility Pass pilot program has been completed and a summary of that report is included below.
4. The disruption of auto access to MIT caused by reconstruction of the Longfellow Bridge was delayed by schedule slippage, but the reconstruction contract has now been approved, and work is expected to commence by July 2013, and disruption of auto access to Kendall Square/MIT to commence by September 1 for a three-year period.
5. The MIT administration has pending a significant shift in cost basis and pricing policy for employee parking, proposed for implementation in August 2013.
6. Significant progress has been made in analyzing information on MBTA ridership of those in the MBTA's Corporate Pass Program, using daily transaction data from employee monthly passes. In a Master's thesis that will be completed in May 2013, a substantially improved information baseline on utilization of employer-based pass benefits at MBTA will be completed.
7. A (separately-funded) Master's degree graduate student research assistant has been in place at MIT since September 2012, organizing and analyzing the paper-based records of employee transit and parking benefits program of major employers in the Kendall Square area.
8. A (separately-funded) MIT Master's thesis will be completed in May 2013, developing a mesoscale model of transportation behavior in the Kendall Square area.

9. The Cambridge City Council has just approved a significant increase in the density permitted on MIT land near Kendall and instituting stronger parking constraints, providing substantial new pressure to accommodate a significantly higher level of employee commuting, with essentially no increase in parking availability.

In short, a number of key underpinnings of the research have been delayed, but are now in place to support implementation of the trial based on research completed for this and a related MBTA-funded project. A summary of the MIT Mobility Pass pilot program research follows below.

In 2004, a thesis and seminar-based research program explored the concept of expanding participation in the MBTA monthly pass program through “universality.” As a means to encourage institutions to be open to universality, the research explored the introduction of payment to the MBTA based upon total usage by the group rather than the flat monthly charge per pass. The hypothesis is that the flat monthly charge for the standard monthly pass is self-limiting, since people who do not expect to use transit daily do not choose to participate. If the transit provider will accept payment based on actual group usage, the institution has the flexibility to design payment mechanisms to encourage transit use by infrequent, as well as frequent, customers.

The concept was then refined, dubbed the “Mobility Pass”, and somewhat reduced in scope, to develop a pilot. The primary modifications were:

- a) The idea of a deeper discount for full transit passes, to achieve an equal percentage (or cash value) of below market price for transit as for parking, as well as the inclusion of students, was deferred to limit the short-term budgetary impact of the pilot.
- b) The idea of charging parkers for the Mobility Pass was deferred; instead, the Mobility Card would be given free to employees who paid for the full parking pass (the price of which had just increased by 11%).
- c) The idea of restructuring parking charges in line with daily marginal costs was deferred.

Eventually the philosophy of the pilot was, “all carrots and no sticks,” to keep feelings positive. To this end, the initiative was reframed as a means to provide high morale for employees who will need to adjust to the (automobile) transportation system that is increasingly affected by growth in congestion and cost.

The experience at MIT with the Mobility Pass provides modest evidence of parking reduction achieved in the limited current pilot (about 4.5 % among participants), and it is clear that the Mobility Pass works technically and achieves some efficiency in card distribution that benefits both parties. (MBTA saves card production and distribution costs, and MIT saves from inhibiting the potential of non-employee use, and avoids some “overpayment” for lightly used monthly passes.) If the “free” chip to full parking employees is heavily used and reduces parking demand, the cost of MIT of the “free” use will rise, but so will the environmental benefit, and the overall financial benefit to MIT will be greater. If the use and benefit are modest, the cost will be modest. A full scale roll-out will be very useful as a mitigation measure, for several likely situations, such as:

- assuming that MIT continues to increase parking charges by 11% per year, or any regular increase
- if MIT decides to realize a savings in its capital budget by not rebuilding the aging Vassar Street (West Garage) and Albany Street structures
- if local traffic congestion increases as the Longfellow Bridge construction is undertaken
- if increases in gasoline prices occur

Similarly, for the MBTA, this program at a minimum saves card distribution costs, and solidifies the relationship with a major employer, and is likely to help attract additional riders in any of the likely scenarios identified above. To make the program permanent and have greater congestion relief benefit, MIT should advocate for the MBTA to offer the program to all employers in the Corporate Pass program.